

I. AMENDMENT

In the Claims:

Please amend the claims as follows:

1. (currently amended) A circuit for providing a back EMF signal that represents a back EMF voltage induced in an electrically floating coil of a brushless DC motor, the circuit comprising:

an input node operable to receive a tap voltage from the floating coil; and
an electrical network coupled to the input node and operable to generate the back EMF signal by removing a predetermined offset voltage from the tap voltage if the predetermined offset voltage is of a same order of magnitude as the back EMF voltage.

2. (currently amended) A circuit for providing a back EMF signal that represents a back EMF voltage induced in a coil of a brushless motor, the circuit comprising:

an input node operable to receive a tap voltage from the coil;
a network coupled to the input node and operable to generate the back EMF signal by removing a predetermined offset voltage from the tap voltage;

~~The circuit of claim 1,~~ wherein the network includes:

an output node operable to carry the back EMF signal;

a control node operable to receive a control voltage V_{con} ;

an intermediate node;

a first resistor $R1$ coupled between the intermediate node and the input node;

a second resistor $R2$ coupled between the intermediate node and the control node;

and

a third resistor $R3$ coupled between the intermediate node and the output node.

3. (original) The circuit of claim 2, wherein $V_{con} \times (R1/(R1+R2)) = (\text{offset voltage})/2$.

4. (original) The circuit of claim 1, wherein the offset voltage includes a voltage drop induced by a driver of the motor.

5. (original) The circuit of claim 4, wherein the voltage drop is across a diode of the driver.

6. (original) The circuit of claim 1, wherein the back EMF signal has a zero crossing that substantially coincides with a zero crossing of the back EMF voltage.

7. (original) The circuit of claim 1, wherein the offset voltage is generated by a current that flows through another coil of the motor.

8. (currently amended) A driver circuit for a sensorless brushless DC motor having a plurality of coils each inducing a respective back EMF voltage while electrically floating, the driver comprising:

a plurality of input nodes each operable to receive a tap voltage from a respective floating coil;

a plurality of electrical networks each coupled to a respective input node and operable to generate a respective back EMF signal by removing a predetermined offset voltage from the corresponding tap voltage if the predetermined offset voltage equals or approximately equals the respective back EMF voltage; and

a zero-crossing detector operable to receive the back EMF signals and determine therefrom when zero crossings of the respective back EMF voltages occur.

9. (original) The driver of claim 8, wherein the motor is operable in a pulse width modulation (PWM) mode having a PWM-on state and a PWM-off state.

10. (original) The driver of claim 8, wherein each network is further operable to generate the respective back EMF signal during a PWM-off state when the respective coil is floating.

11. (currently amended) A sensorless brushless motor assembly, comprising:
a sensorless brushless motor having a plurality of coils each generating a back EMF voltage during a respective floating period; and
a motor driver circuit including
a plurality of input nodes each operable to receive a tap voltage from a respective one of the floating coils;
a plurality of electrical networks each coupled to a respective one of the input nodes and operable to generate a respective back EMF signal by removing a predetermined offset voltage from the corresponding tap voltage if the predetermined offset voltage is of a same order of magnitude as the respective back EMF voltage; and
a zero-crossing detector operable to receive the back EMF signals and to determine when the zero crossings of the back EMF voltages occur.

12. (original) The motor assembly of claim 11, wherein the driver circuit further includes a controller operable to commutate the motor in response to the detected zero crossing.

13. (original) The motor assembly of claim 11, wherein the motor is operable in a pulse width modulation (PWM) mode having a PWM-on state and a PWM-off state.

14. (original) The motor assembly of claim 13, wherein each network is further operable to generate the back EMF signal during respective PWM-off states.

15. (original) The motor assembly of claim 11, wherein each coil has one end coupled to a center tap and the tap voltage is provided proximate to another end of the coil.

16. (currently amended) A method of providing a back EMF signal that represents a back EMF voltage induced in an electrically floating coil of a brushless motor, comprising:
receiving a tap voltage from the floating coil; and
generating the back EMF signal equal to the tap voltage minus a predetermined offset voltage if the predetermined offset voltage is of a same order of magnitude as the back EMF voltage.

17. (currently amended) A method ~~of~~ for advancing a sensorless brushless motor having a plurality of coils, comprising:

receiving a tap voltage from one of the coils while the coil is floating;

removing a predetermined offset voltage from the tap voltage to generate a back EMF signal that represents a back EMF voltage induced in the floating coil if the predetermined offset voltage and the back EMF voltage are of a same order of magnitude;

detecting a zero crossing of the back EMF voltage from the back EMF signal; and

advancing the motor a step in a commutation sequence in response to detection of the zero crossing.

18. (original) The method of claim 17, further comprising repeating the steps for a tap voltage from another coil.

19. (currently amended) A circuit for providing a back EMF signal that represents a back EMF voltage induced in an electrically floating coil of a brushless motor, the circuit comprising:

means for receiving a tap voltage from the coil; and

means for generating the back EMF signal by removing a predetermined offset voltage from the tap voltage if the predetermined offset voltage and the back EMF voltage are of a same order of magnitude.